

CENTRAL FILING DEPARTMENT

CLASS. *Elm*

1-7

**STONE & WEBSTER ENGINEERING CORPORATION**

49 FEDERAL STREET, BOSTON 7, MASSACHUSETTS

NEW YORK  
BOSTON  
CHICAGO  
HOUSTON  
PITTSBURGH  
LOS ANGELES  
SAN FRANCISCO

December 31, 1954 NOTED JAN 7 - 1955

NOTED JAN 3 1955 J.R.R.

NOTED JAN 6 1955 H. C. NOTED JAN 7 1955 L.S.F.

Mr. J. G. Holtzclaw,  
President,  
Virginia Electric and Power Company,  
7th and Franklin Streets,  
Richmond 9, Virginia.

ENGINEERING  
J.O.No. 9044

NOTED JAN 4 1955 E.H.W.

Dear Mr. Holtzclaw:

**< PROPOSED YORKTOWN PLANT >**

Since the visit that Mr. Dolbeare, Mr. Hutcheson, Mr. Curwen and the writer had with American Oil Company representatives on December 28, we have received the attached letter from Dr. Kasch stating that the memorandum of telephone conversations on December 22 and 23 were correct except that the pilot plant could produce 500 lb of delayed coke in one week.

Mr. Dolbeare and Mr. Hutcheson have several copies of the telephone conversation which related to the characteristics of the delayed coke but two additional copies are attached for your information.

Attached to Mr. Dolbeare's and Mr. Hutcheson's copies of this letter are three prints each of Coal Freight Rates, Virginia Electric and Power Company, which they have requested.

Yours very truly,

*E. H. Krieg*  
E. H. Krieg,  
Consulting Engineer.

Enclosures



AR100001

If the page filmed in this frame is not as readable or legible as this label, it is due to substandard color or condition of the original page.

STONE & WEBSTER ENGINEERING CORPORATION

AMERICAN OIL COMPANY  
122 East 42nd Street  
New York 17, N. Y.

December 30, 1954

Mr. E. H. Krieg  
Stone & Webster, Inc.  
49 Federal Street  
Boston, Massachusetts

Dear Mr. Krieg:

As requested during our discussions on December 28, I am returning herewith a corrected copy of the notes of our telephone conversations of December 22 and 23, 1954. The information contained therein appears accurate, with the exception that the pilot plant will produce 500 pounds of coke from one week's operation, rather than 250 pounds.

Arrangements have been made to ship by air express a 50-pound sample of typical run-of-the-mill coke from each of Pan-Am Southern Corporation's refineries at Destrehan, Louisiana, and Eldorado, Arkansas, to the Virginia Electric & Power Company of Richmond, Virginia.

Since our conversations this week, we have investigated further the moisture content that might be expected for delayed coke. Standard Oil Company (Indiana) advises that moisture content on their coke immediately after draining runs 5 to 10 wt.%. Monthly composites of the coke stockpiles average 2 to 4 wt.%, some below 2%. It was their opinion that the moisture content after two weeks' storage will run 3 to 5 wt.%. Their coke is usually classified by passing over a 3" grizzly which retains approximately 20% above 3" in size. Some of this will be greater than 6" in diameter. However, in general, these large lumps represent a relatively small percentage of the total coke. Additional information regarding coke size distribution is being obtained. It was understood that raw coke reaches an equilibrium in about ten days, after which it will no longer absorb moisture, even if exposed to rainwater.

Pan-Am Southern Corporation advises that the moisture content of their coke is approximately 1 to 2 wt.% after draining and storage for one to two days. However, this moisture is based upon analyzing a relatively large lump, such as 6" in diameter. The volatile matter on the Standard Oil Company (Indiana) coke has been approximately 12% with a range of about 10 to 14%. The information is preliminary; additional data on covering extended periods of time are being obtained and should be available next week.

Very truly yours,

(Sgd.) John E. Kasch

AR100002

ORIGINAL  
(254)

J.O. No. 9044

NOTES  
FROM TELEPHONE CONVERSATIONS BETWEEN MR. E. H. KRIEG AND  
DR. J. E. KASCH  
DECEMBER 22 AND 23, 1954  
VIRGINIA ELECTRIC AND POWER COMPANY

Dr. Kasch stated that normally the delayed coke will be produced from Venezuela crude oil feed stock, but that at times the feed stock will also contain half Texas crude. In general, the delayed coking process will be the same as that used at Whiting, Indiana but will utilize a different feed stock.

The coke will be removed from the coker by hydraulic decoking.

Utilizing all Venezuela crude, maximum coke production is expected to be 500 tons/day. Utilizing half Venezuela and half Texas crudes, the maximum production is expected to be 300 tons/day. If asphalt is produced by the refinery, the above two maximum figures would be reduced by 100-125 tons/day. Amoco will try to obtain a high coke production of 400 tons/day, range 100 to 500.

The coke ultimate analysis for metals is as follows:

<u>Metals</u>	<u>Ppm</u>
Aluminum	200
Calcium	75
Copper	4
Iron	250
Lead	80
Magnesium	95
Nickel	350
Silicon	85
Sodium	4,000
Vanadium	2,100-2,500

The above analysis indicates a high sodium content and, therefore, the crude oil may have to be desalted.

Delayed coke from Venezuela crude oil has the following analyses:

Density in drum, lb/cu ft	50 (variation 50-60)
Size of coke	40-50% under 3/8", avg. 6"
Density stored in pile, lb/ft <sup>3</sup>	40-50
Volatile matter, % by wt	9-12
Fixed carbon, % by wt	86-89
Hydrogen, % by wt	3.4-3.9

ARI00003

2.

Water content, %	0.3-1.5 (air dried, one or two days after removal from coker)
Sulphur, % by wt	4.2-4.6 (Venezuela crude) 2-2.5 (Texas crude)
Ash, % by wt	0.5-0.8
Vanadium, % by wt	0.2-0.25
Net heat content, Btu/lb	14,500-15,500, avg. 15,000
Grindability	Good (no gumming)
Benzol insolubles, %	2-3

The Amoco pilot plant has two coking drums, each 6 ft high by 14" diam. In one week the pilot plant can fill both drums, thereby producing 250 lb of delayed coke.

The physical characteristics of the coke vary from top to bottom within the coking drums, eg., friability.

Amoco expect to produce 74 M Btu/hr of gas which is approximately 3,600 lb/hr. The Btu content of the gas is expected to be  $\pm 1,100$  Btu/cu ft in the winter and higher in the summer because of propane. The quantity of gas will vary with the amount of coke produced.

Amoco will arrange for a run in the pilot plant to begin about January 10. At the December 28 meeting in New York, the objectives of the run will be discussed.

Copy to W. I. Dolbeare  
E. S. Fits  
R. M. Hutcheson  
T. E. Crossan  
A. W. Davenport  
H. J. Klotz  
T. A. Fearnside/L. E. Chadbourne  
W. F. Ryan/A. W. Pratt

AR100004